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SCIENCE NEWS LETTER



®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Mars When Closest

See Page 211

A SCIENCE SERVICE PUBLICATION

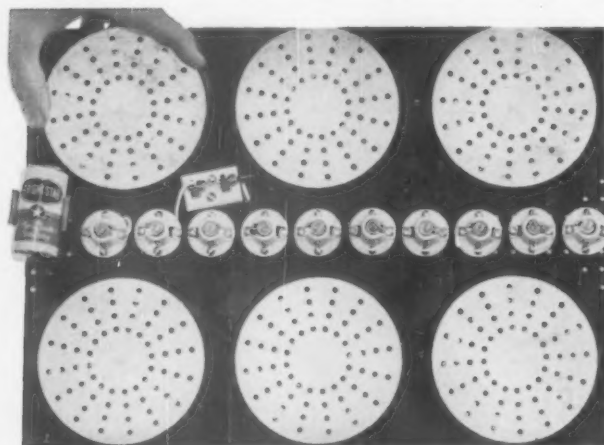
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ASTRONOMY

South Africans Take Many Pictures of Mars

See Front Cover

► The photographs of Mars shown on the right and on the cover of this week's SCIENCE NEWS LETTER were taken during the recent close approach of the planet to earth by Dr. W. S. Finsen and an assistant at the Union Observatory, Johannesburg, Union of South Africa.

They are black and white blow-up prints made from 16mm. color movie film.

The first two at right show the gradual diminishing of the south pole cap with the approach of the Martian summer. They also show the apparent increase in size of the planet as it drew closer to the earth, from 44,000,000 miles on July 31 to 36,000,000 miles on Aug. 26.

To estimate the size increase, the marker dots on each side can be used as reference points, since the space between them is uniform. The dots form a horizontal axis.

The south pole cap points upward because the image of an object is reversed in a telescope.

The third photograph at right was taken on Aug. 30 when Mars was 35,500,000 miles away, very close to its minimum distance from the earth during 1956. It shows the last stages in the disappearance of the pole cap.

These black and white photographs do not show many of the interesting features and changes from night to night seen in the color versions. The white areas can be the polar cap, light orange markings on the surface, or yellow and other clouds above the surface.

Dr. Finsen photographed what appeared to be a yellow cloud moving across Sinus Sabaeus. (See SNL, Sept. 15, p. 165.)

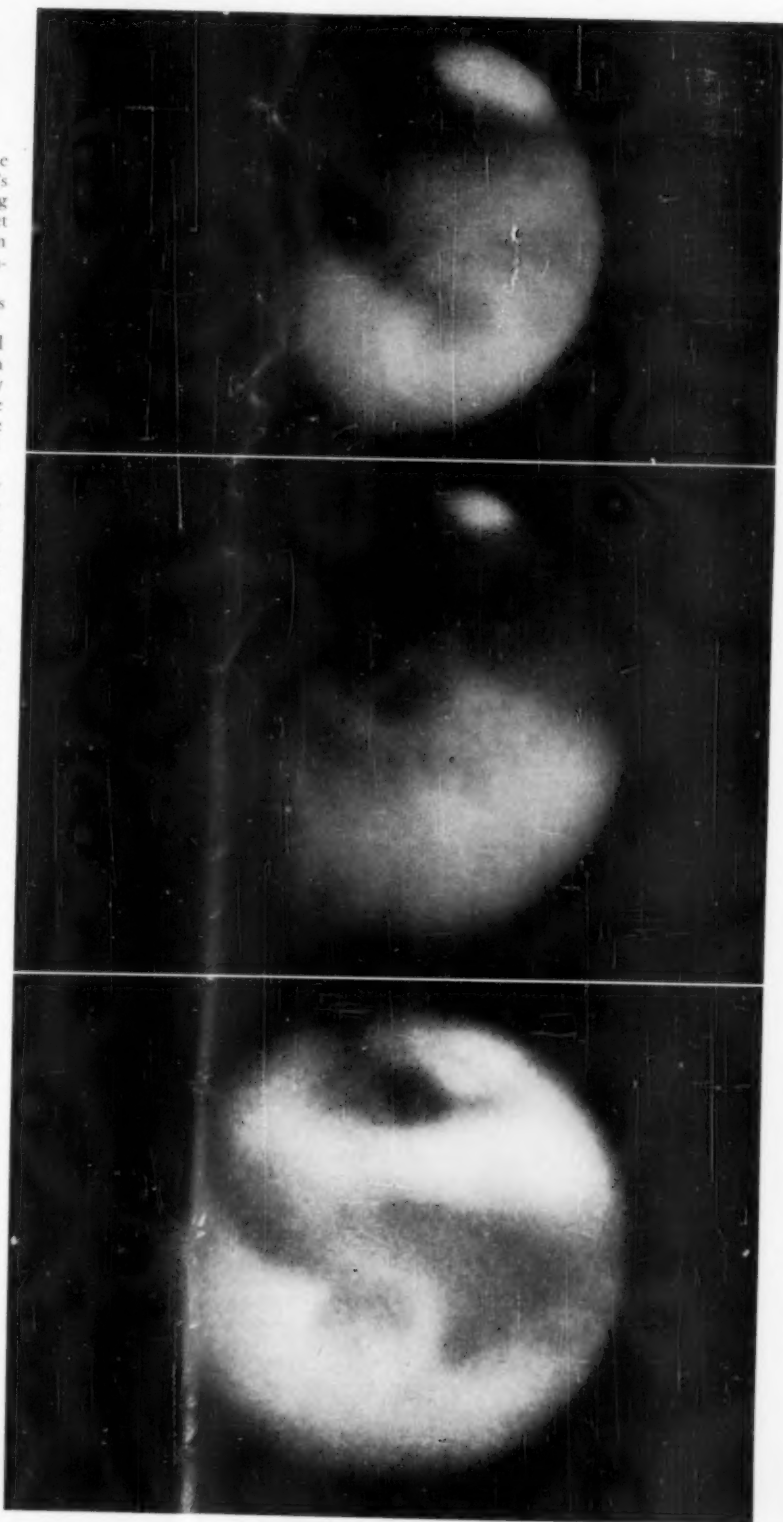
The cover photograph was taken the night of closest approach, Sept. 7, Greenwich time, when Mars was "only" 35,120,000 miles away. It shows the presence of large masses of yellow clouds in the Martian atmosphere, obscuring much of the permanent surface markings. Through a gap in this cloud formation, Syrtis Major and part of Sinus Sabaeus are visible.

The best opportunity for studying Mars is near opposition, when earth is roughly between the sun and the planet, and when it crosses the meridian near midnight. Favorable oppositions occur in pairs, separated roughly by two years and two months, at intervals of about 15 years. (See SNL, June 30, p. 407.)

Dr. Finsen and his assistant used the 26 and one-half inch refractor at the Union Observatory to make these and hundreds of other photographs.

Dr. E. C. Slipher of Lowell Observatory, Flagstaff, Ariz., traveled to South Africa both this year and in 1954 to use the 27-inch refractor of the Lamont-Hussey Observatory at Bloemfontein for taking pictures of Mars.

Science News Letter, October 6, 1956



BIOPHYSICS

Use Rotation for X-Rays

► **MOST CANCERS** in the chest should yield to rotation X-ray treatment, Dr. Edith H. Quimby of New York declared at the meeting of the American Roentgen Ray Society in Los Angeles.

Rotation therapy, as it is called, is "cross-fire technique pushed to the limit," Dr. Quimby said.

In this treatment the patient is rotated about an axis so that the largest possible number of "ports," or entrances, are taken by the X-rays on the way to the cancer.

With this technique, the cancer region can generally be given a uniform dose which is considerably higher than that to any other tissues, so that damage to them by the rays is avoided or kept to a minimum.

The cancer is usually placed at, or close to, the axis of rotation, and the efficiency of the therapy may be described by the ratio between maximum skin dose and axis dose. The smaller this ratio, the more satisfactory is the arrangement, Dr. Quimby said.

She listed two factors which influence the dosage delivered to the cancer lesion,

be it in the head, the pelvis or chest. These factors are:

1. Intrinsic, comprising the size and shape of the body section, the size of the cancer mass, and the nature of the tissues traversed, such as muscle, bone, or lung. These factors cannot be modified by the radiologist; they are characteristic of the individual patient.

2. Extrinsic. These are the radiation quality, target-axis distance, and to a certain extent, field size. Within limits these may be modified in the treatment of a particular patient.

In the head, it appears that even with a large field, and the shorter target-axis distance, the skin never receives as much as two-thirds of the axis dose, Dr. Quimby found from her studies. The situation improves with increased distance.

For cancers situated anywhere in the interior of the head, rotation therapy should be a good technique.

In the pelvis, supervoltage (more than a million volts of radiation) has an advantage for large body sections.

Science News Letter, October 6, 1956

PHYSIOLOGY

Body Build Is Clue

► **BODY BUILD** is linked with juvenile delinquency, Prof. Sheldon Glueck and his wife, Dr. Eleanor Glueck, Harvard Law School authorities on criminology and delinquency, report.

The boy with the solid, muscular build is vigorous, assertive and apt to take out his tensions in action, the Gluecks find. He has a high "delinquency potential," so that if home and social life produce tensions and he has no "approved" outlet, he is likely to become delinquent, engaging in anti-social actions.

Football, and lots of it, is an example of an "approved" outlet for tension that might help save such a boy from delinquency.

Physique or body build is not the one and only cause of juvenile delinquency, the Gluecks point out in their latest book, "Physique and Delinquency," published by Harper and Bros. It is one of many broad variables involved.

Of 500 delinquent boys they studied, however, 60% were the solid, well-proportioned, big-boned athletic type scientists call mesomorph. Of 500 non-delinquent boys studied at the same time, only 30% were mesomorphs.

The boys were otherwise matched boy for boy in age, intelligence, race derivation and type of community from which they came.

The softer, rounder endomorph type of boy is less sturdy, less energetic and less dynamic. He is more inhibited and con-

ventional in ideas and behavior. Of the 500 delinquent boys, only 11.8% were endomorphs.

Ectomorphs, making up 14.4% of the 500 delinquents, are linear and fragile. They present "a more sensitive and aesthetic exterior to the world. They are more tense, inhibited and conflict-ridden, bottling up their impulses and their destructive-sadistic trends."

Science News Letter, October 6, 1956

VITAL STATISTICS

New Mexico Has Lowest Heart Death Rate

► **LOWEST DEATH RATE** for coronary heart disease among white males in the nation is found in New Mexico. Highest is in New York.

The findings are from a nationwide survey made by the U. S. Public Health Service for the year 1950.

The New Mexico rate was 191.1 per 100,000 population compared with 393.8 for New York. Also rating high were Rhode Island, 364.3, and Washington, D. C., 344.3. Other states with low death rates were Arkansas, 201.2, and Kentucky, 211.2.

For white females the differences in death rates from coronary heart disease in different areas were even greater—83.4, 87.8, and 89.0 in New Mexico, Arizona and Nebraska, compared with 217.4, 176.6 and

175.6 in New York, New Jersey and Rhode Island.

Possible explanations for the geographic differences include differences in diet, exercise, stress, hereditary factors, and differences in the physical characteristics of populations in various parts of the country.

The survey is reported by Philip E. Enterline, chief statistician of the heart disease control program of the Public Health Service, and Dr. William H. Stewart, assistant director of the Service's National Heart Institute, in *Public Health Reports* (Sept. 20).

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PSYCHOLOGY

Election May Disappoint

Public in United States expects too much from the man elected President, looking for both a great politician and a great administrator, political scientist charges.

➤ **WHICHEVER CANDIDATE** is elected to the presidency in November, the American public is likely to be disappointed.

That is because Americans make impossible demands on the Government executive.

They want him to be a great politician and also a great administrator, Dr. Harlan Cleveland, dean of the Maxwell Graduate School of Citizenship and Public Affairs at Syracuse University, Syracuse, N. Y., points out in the *Annals of the American Academy of Political and Social Science* (Sept.).

Presidents, of course, do not usually succeed on both counts, Dr. Cleveland states. Yet, he says, Americans "continue to pine for that rare amalgam—the man who can run the executive branch and still get along with most of the other Americans, in and out of Congress, who think they are anointed to run the Government too."

This dual role is demanded not only of the President, but of every Government executive all down the line.

"Each executive official," he says, "whether politically appointed or not, has to spend an unconscionable amount of his time and energy telling Congress what he is doing and why."

It is not enough for an administrator to defend a program from political attack. He finds himself actively promoting a political coalition in its support.

And he has to do more than run his shop and deal with Congress. He has to maintain a complex network of horizontal relations with veto groups whose interests his actions may affect, and with their surrogates in both the executive and legislative branches of the Government.

The Government is, Dr. Cleveland notes, the least bureaucratic of the major interest groups with which it has to deal.

Turnover of Government personnel is high, especially at the top, but in business, labor, agriculture and other categories, the same leadership is maintained from year to year and decade to decade.

"If you do not like the President of the United States, you can vote against him every four years," Dr. Cleveland explains. "If you do not like the president of General Motors or the head of a labor union, you can only wait for him to die."

Dr. Cleveland provides a kind of score for recent Presidents on how well they filled the dual role demanded of them.

Franklin Roosevelt: Unsurpassed in this century as a builder of consent in war and peace, but as casual an administrator as ever hit Washington.

Harry Truman: An able and orderly

administrator, but hardly better than fair at building consent.

Dwight Eisenhower: Combines a remarkable talent for evoking consent with an equally remarkable tendency to appoint as administrators of his policies men who disagree with them.

Science News Letter, October 6, 1956

CLIMATOLOGY

Old Pollens Date Ice Age Climates

➤ **OLD POLLENS** buried in a now-dry New Mexican lake bed can be used to date climate changes during the Ice Ages, four scientists report in *Science* (Sept. 21).

They have carefully examined the kinds of pollen found in the lake's sediment layers down to a depth of 645 feet and the geology of the San Augustin Plains below the well-known Bat Cave from which the sample was taken. The region is about 7,000 feet above sea level.

Periods of low temperature are indicated by an abundance of spruce pollen, while high temperatures are shown by little or no spruce pollen. Pollens of semi-desert scrub and grass plants are a clue to how arid the region was at the time.

Radiocarbon dating of a top portion of the core sample showed that a group of glacial episodes occurred many thousands of years ago; one between 18,100 and 21,300 years ago, and another between 23,800 and 32,000 years ago.

Drs. Kathryn H. Clisby and Fred Foreman of Oberlin College, Oberlin, Ohio, Dr. Paul B. Sears of Yale University and Dr. Charles E. Stearns of Tufts University, Medford, Mass., are conducting the studies of changes in Pleistocene climate as shown by pollen counts.

Science News Letter, October 6, 1956

MARINE BIOLOGY

Albacore Tuna Reappear Off Oregon Coast

➤ **ELUSIVE ALBACORE TUNA**, not seen in Oregon and Washington coastal waters since the 1940's, have been sighted 300 miles west of the mouth of the Columbia river, according to the Oregon fish commission.

Reports of the finds were made by radio from the "Brown Bear," operated by the University of Washington for oceanographic studies, and the "John N. Cobb," operated by the U. S. Fish and Wildlife Service.

Scientists on the two boats have been searching the Pacific for the tuna and studying ocean conditions affecting them.

According to reports received from those on board, 45 albacore tuna have been caught in an area generally 270 to 300 miles off the coast from Willapa Bay to off Cascade head.

The boats have been zigzagging up and down the coast to a distance up to 300 miles off shore.

Science News Letter, October 6, 1956



TESTING FOR JETS—This combination instrument records brain waves and provides a fast and accurate analysis. It helps to measure certain physiological changes affecting the shape and frequency of brain waves.

PSYCHIATRY

"Brainwashing Methods"

Russian and Chinese Communists differ in their aims in "brainwashing." Root of the method's temporary success is the disturbance of man's relationship with his environment.

► THE MAJOR DIFFERENCE between Chinese Communist and Russian Communist "brainwashing" is that the Chinese Communists aim at developing a long-lasting change in attitude and behavior that will continue after release from prison.

The Russian Communists, on the other hand, aim at getting a "confession."

These differences and also many similarities between the two Communist methods are reported by Drs. Lawrence E. Hinkle Jr. and Harold G. Wolff of New York in the *Archives of Neurology and Psychiatry* (Aug.).

The two psychiatrists collected their information while serving as consultants to the U. S. Department of Defense.

The general impression that "brainwashing" is a new, scientific method of "thought control" giving guaranteed and permanent results is entirely false, the two psychiatrists report.

This general impression is, however, good propaganda for the Communists, they state. "Brainwashing" generally succeeds in causing a prisoner to change his attitude just enough to satisfy his captors and relieve the "intolerable pressures under which he labors."

The exception to this is the case of U. S. Air Force POW's who "confessed" to bacteriological warfare during the Korean conflict. These men were not "brainwashed" into believing their confessions. They confessed to things they knew were not true, only because they were submitted to extreme brutality and physical torture, which are not usually a part of the indoctrination process.

In the case of Western civilians, successful brainwashing is limited. Prisoners who are "converted" usually readjust when released.

At the root of the method's temporary success is the fact that man's relation to his environment is disturbed. Man is a living system, the psychiatrists explain. He is entirely dependent on keeping a satisfactory relationship with his environment, including maintaining a satisfactory body temperature; adequate intake of food, liquids and air; elimination of waste; rest; activity, and satisfactory relationships with other people.

When any of these relationships are disturbed, the resulting unpleasant feelings make a man want to act to restore the balance. If the disturbance is strong enough, a man will "do anything" to end it.

Before deciding to end it by "confessing," the prisoner goes through a process of rationalization in which he convinces himself that what he confesses is true and not

just an escape. Something he remains convinced, but generally he returns to his original thinking once he is released from prison.

Science News Letter, October 6, 1956

CHEMISTRY

Finds Way to Better Insect Repellents

► BETTER insect repellents should come through a discovery by Dr. R. H. Wright of the British Columbia Research Council, Vancouver, Can.

Incidentally, scientists will no longer have to test repellents by letting mosquitoes or other insects feed on their arms to see whether or not the repellent actually repels.

Chemicals do or do not repel mosquitoes and probably other insects according to the low-frequency fundamental vibrations of the molecules of the chemicals, Dr. Wright reports in *Nature* (Sept. 22).

The molecular vibration can be determined from the chemical's absorption of infrared light. Those chemicals with infrared absorption of a certain pattern repelled mosquitoes. Others of a different pattern did not. The only exception found was dimethyl phthalate, a well-known repellent. Its structure probably explains this.

Besides giving a physical test for mos-

quito repellents and a clue to the kinds of chemicals to make and test, Dr. Wright's discovery lends support to the theory that the low-frequency vibrations of molecules provide the physical basis of their odors. Such vibrations may be able to trigger nerve discharges so that the sensation of odor reaches the brain.

Science News Letter, October 6, 1956

MEDICINE

Antibiotics to Prolong Life of Leukemia Patients

► LIVES of some leukemia patients might be prolonged by "more enlightened" use of antibiotics, or so-called mold remedies, the International Society of Hematology at its Sixth Congress in Boston was told in a report by Drs. John Louis, William R. Best, Mark H. Lepper and Louis R. Limarzi of Chicago.

The fever that is common in leukemia, especially the acute variety, is generally thought to result from the leukemic process. Infection is generally considered unimportant because of the "prophylactic" use of antibiotics. The Chicago scientists questioned these common ideas and, to learn more of the subject, reviewed the course of 30 consecutive patients dying with leukemia. All but one had fever at the time of death.

In one group, making up 44% of the patients, they found that infection on top of leukemia apparently precipitated death.

In a second group, 34%, infection was present at death.

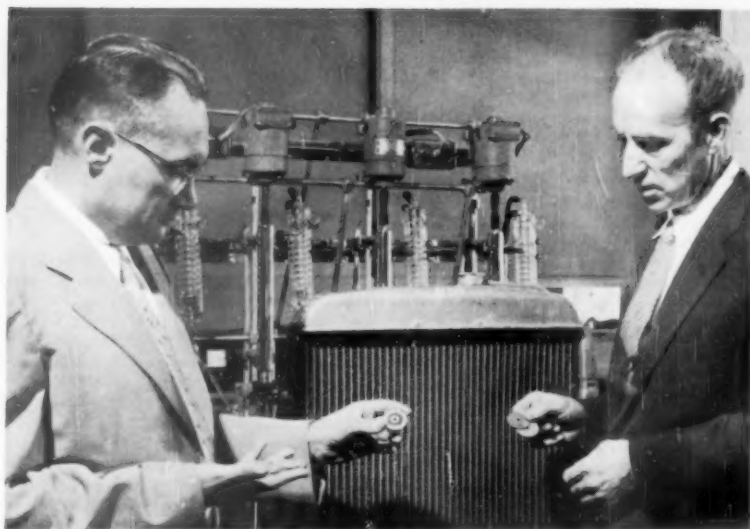
In the third and smallest group, 22%, no infection was found at death.

The ear and lung were the most frequent sites involved in the infections.

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BANK DEPOSIT—In the plastic bag is a frozen blood vessel placed beneath the nozzle of an electron beam generator at the General Electric Research Laboratory to sterilize it before storage in a blood vessel bank. From left to right are Dr. William J. Farrell, Dr. William F. Westendorp and Elliott J. Lawton.



FLYING SAUCERS—These tiny aluminum discs were spun at 12,000 revolutions per minute in various corrosive solutions to provide data on how an aluminum automotive radiator would stand up in various coolants. They are held by Dr. Summer B. Twiss, left, and William E. Drinkard of Chrysler Corporation engineering division.

BIOCHEMISTRY

Fighting Drug Needed

► A GOOD FIGHTING DRUG, instead of tranquilizers and "happy pills" and anxiety relievers, may be what this country needs.

This idea, which could revolutionize drug treatment for the mentally sick and the neurotics, was suggested in discussions at a conference on evaluation of pharmacotherapy in mental illness. The conference was sponsored by the American Psychiatric Association, the National Academy of Sciences, National Research Council and the National Institute of Mental Health.

Look for a drug which restores an animal's ability to fight back, it was suggested. Such a drug might be more useful than tranquilizers and euphorants now given to make patients quiet and cooperative and to lift their depressed moods.

Instead of looking for more tranquilizers and euphorants, medical science was asked to look also for something that will help a mentally sick person discriminate between what once was terrifying and that which need not be now the patient is grown up and in a different situation than when he was a child frightened because he could not understand.

Such a drug should help the patient learn to enjoy going to sleep to rest instead of dreading it because of nightmares or looking to it for escape.

Since drugs are "screened" on laboratory animals to test their effects, one that enabled an animal to change its fixation at

an immature stage of development might help a schizophrenic patient change his.

The drug that has an effect on only one patient out of 15 should be studied further instead of being discarded as useless. This very drug, even if it seemed at first to be a dud, could perhaps provide a mine of information about mental illness and new ideas for drugs.

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HEMATOLOGY

Cobra and Bee Venom Aid Study of Bleeder Disease

► FROM COBRA and bee venom is coming more knowledge of a bleeding disease known as Christmas disease.

The new findings were reported by Dr. J. R. O'Brien of Portsmouth, Eng., at the International Society of Hematology meeting in Boston.

When these venoms are added to blood plasma, they destroy a factor present in normal blood serum but not in serum of patients with Christmas disease. From this Dr. O'Brien concludes they destroy the Christmas factor.

Christmas factor has a high avidity for phospholipoid chemicals. Bee and cobra venoms contain such chemicals. This suggests that Christmas factor has a phospholipoid chemical combined with its protein.

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TECHNOLOGY

Transatlantic Phone Link Opened to Public Service

► THE FIRST UNDERWATER TELEPHONE link to span any ocean was opened to public service when officials of American, British and Canadian communications companies vocalized their greetings across 2,250 miles of deep sea.

Culminating two years of construction at a cost of \$42,000,000, the twin cables, 20 miles apart on the Atlantic sea bottom, are capable of carrying 36 conversations at one time.

The cables used average an over-all diameter of one and one-quarter inches. They were laid in three segments by the cable-ship Monarch, the largest such vessel afloat. It took seven months to complete the laying operations.

Two cables were needed because the design of each cable permits transmission in only one direction.

The deep-sea segment of the system extends 2,250 miles from Clarendville, Newfoundland, to Oban, Scotland. From Oban, new trunk lines link the system to switchboards in London. On this continent, land and water sections bring the transoceanic circuits to Portland, Me., and to Montreal.

The American Telephone and Telegraph Company, British Post Office and Canadian Overseas Telecommunication Corporation are partners in the cable system.

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AGRICULTURE

Agriculture Yearbook Deals With Animal Ills

► THE 1956 YEARBOOK of Agriculture (see p. 220) is a medical encyclopedia for animal owners.

The Yearbook, which since 1936 has been devoted to a single subject annually, deals solely with animal diseases this year. It includes 134 chapters by leading scientists on nearly every aspect of disease in domestic creatures.

Animals emphasized include dogs, cats, cattle, swine, sheep, goats, poultry, horses, mules, rabbits, minks and even foxes.

The book tells how to recognize, treat and prevent animal diseases. It tells which diseases can be transmitted to people and describes similarities between animal illnesses and human ailments.

The contributors, mostly U. S. Department of Agriculture and state college scientists, take a variety of specialized approaches to the disease problem. Chapters are devoted to sulfa drugs, antibiotics, protection against transmissible diseases and parasites, food supplies and animal diseases, causes of disease, and genetics and disease.

Secretary of Agriculture Ezra Taft Benson, in his foreword to the book, urges students of veterinary and biological sciences to take more highly specialized training in their fields.

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VIROLOGY

Radiation Sensitivity May Hinge on Virus Bonding

► DIFFERENCES in the nature of bonding between components may be the reason some viruses are protected from damaging radiation effects while others are easily killed, Drs. Albert Siegel, S. G. Wildman and William Ginoza, University of California at Los Angeles scientists, suggest.

Two closely related strains of tobacco mosaic virus differ about five times in the ease with which they are killed by ultraviolet light.

These viruses consist of two chemical components, a nucleic acid core surrounded by a protein sheath. The nucleic acid core, by itself, can infect tobacco plants, recent studies have shown.

It was found that, without their protein sheath, the nucleic acid cores are killed by ultraviolet light at the same rate. This rate is the same as that of the intact virus of the more sensitive strain.

Since the ultraviolet light is absorbed mostly by the nucleic acid and not much by the protein, it was concluded that the resistant virus strain was protected from radiation by the way its nucleic acid core is bonded to the protein sheath.

This bonding may afford protection in either of two ways, the investigators said. Energy absorbed by the nucleic acid can be transferred into the protein where it may have little effect on biological activity, or the protein may hold the nucleic acid in such a configuration that damage to the nucleic acid is easily repaired.

Science News Letter, October 8, 1956

PEDIATRICS

No Football For Pre-Teens

► BOYS not yet in their teens should not play tackle football. Wrestling, boxing and other body contact sports should also be avoided in sports programs for this age group.

This is the opinion of the American Academy of Pediatrics, an organization of physicians specializing in and specially trained for the care of the health of babies and children.

Children of this age, the specialists point out, are particularly susceptible to bone and joint injury. This is because the growing ends of their long bones have not yet calcified, or hardened, as the layman thinks of it.

Pre-teen age children do not have the protection of grown-up muscles, either. Injury to their bones and joints during the growing years, the pediatricians further point out, may interfere with normal bone growth.

Girls as well as boys should have a chance at sports, although problems of growth and development are more evident in girls because some begin normally to mature before the age of 12.

Sports programs which include calisthen-

ics, folk dancing, kickball, baseball, swimming, skating, tennis, golf, archery and similar activities should be encouraged for both boys and girls in their pre-teens.

Although baseball is a good game in itself, it often becomes highly competitive and this tendency should be guarded against in the pre-teens.

Competition, the pediatricians state, is a natural, healthy process. The young child competes with his playmates, himself or with his environment. This drive should be understood and helped to develop normally and not suppressed or over-stimulated.

Athletic activities, whether part of a school program or outside the school program, should include competent medical supervision of each child. Teachers and athletic directors should be encouraged and helped by the physician to watch the health of each child.

Children should be helped to learn to play games for the fun of playing. Too much stress on winning should be avoided.

Science News Letter, October 6, 1956

WILDLIFE

Surplus Big Game Animals for Sale

► A BUFFALO for \$150 or an elk for \$90 are offered in a special Fish and Wildlife Service sale.

The sale, held annually as a wildlife management measure, includes more animals than usual this year. Animal populations have reached their optimum levels on most refuges. Drought in many southwestern areas has necessitated selling a greater percentage than in past years.

The animals may be purchased alive or butchered, dressed and quartered. Preference is given to buyers who want live specimens.

In announcing the sale, Fish and Wildlife Service director John Farley said big game hunters need not fear that herds are being discontinued. He said the sale is a control measure to prevent overgrazing.

The animals being sold include 500 buffaloes, 76 elk, 110 mule deer and 151 horned cattle.

A mature buffalo not under two years old sells for \$150. A buffalo under two years old costs \$125. A butchered, 450-pound animal costs \$125 to \$150 depending on where purchased, and a half-carass can be purchased for \$62.50 to \$75.

A full grown elk costs \$90 or \$110, depending on the place of purchase, and an elk less than two years old costs \$80. Butchered, a 250- to 300-pound elk costs the same as a mature live animal.

Prices include the cost of shipment. In most cases, the nearer the purchaser is to a source of animals, the less the animals cost. Prices this year are a little lower at the Wichita Mountain Refuge at Cacha, Okla.

A leaflet with further details may be obtained by writing the director of the Fish and Wildlife Service, Washington, D. C.

Science News Letter, October 6, 1956

IN SCIENCE

PUBLIC HEALTH

Hospital Costs More Than Double in Ten Years

► HOSPITALS are spending more than twice what they did ten years ago for care of each patient each day.

In hospitals of all types in the United States, expenditures per patient day rose from an average of \$5.21 to \$11.24 between 1946 and 1955, reports Ray E. Brown, president of the American Hospital Association, Chicago, and superintendent of the University of Chicago Clinics.

Expense per patient day in the nonprofit short-term general and special hospitals increased from \$10.04 to \$24.15.

"Hospital care has become more expensive as it has offered more diversified services for treating and caring for patients," Mr. Brown says. The increase in hospital expenses also reflected the rise in payrolls and the increased cost of supplies and equipment.

Science News Letter, October 8, 1956

BIOCHEMISTRY

Green Scum on Ponds Could Improve Bread

► CHLORELLA, best known as the green scum on ponds, could make bread more nourishing, it appears from studies by Drs. J. M. Hundley and R. B. Ing of the National Institutes of Health, Bethesda, Md., and Dr. R. W. Krauss of the University of Maryland, College Park, Md.

The green algae called chlorella would help by providing a cheap source of two protein building amino acids, lysine and threonine. Adding these two amino acids has previously been shown to improve the nourishing quality of enriched bread by adding to its protein value.

Laboratory rats given one of these algae plus enriched bread or flour gained much more weight in a 27-day period than rats on the same diet without the chlorella.

One of these amino acids, lysine, can be produced synthetically at "modest cost," the scientists point out in *Science* (Sept. 21). A lysine-enriched bread is being marketed experimentally.

Threonine, however, is still very expensive. So the scientists made further experiments to see how the algae would act as a source of threonine in supplementing enriched bread.

Judged by both growth of the rats and food efficiency, that is, weight gained in relation to the weight of food eaten, chlorella was an effective source of threonine, better than purified soya protein, and equal to several animal-protein foods of high biological value, such as eggs and liver.

Science News Letter, October 8, 1956

CE FIELDS

NUTRITION

Link Cleft Palate With Stress in Early Pregnancy

► CLEFT PALATE and harelip in a baby may be caused by stress to the mother during the first months of the baby's life before birth. Vitamins B-6, B-12 and C and other essential nutrients given the mother may prevent the condition.

Studies suggesting this are reported by Drs. Lyon P. Streen and Lyndon A. Peer of St. Barnabas Hospital, Newark, N. J., and the Merck, Sharp and Dohme Research Laboratories, Rahway, N. J., in the *Journal of Plastic and Reconstructive Surgery* (July).

The eighth to tenth week of pregnancy, they point out, is when the upper jaw bones in the unborn baby fuse. Investigation of 232 cases of cleft palate and harelip showed that most of the mothers had suffered stress during this period.

Severe emotional stress such as death in the family or loss of employment, especially when associated with excessive vomiting, seemed the most important single stress. It was reported in 68% of the mothers.

Physiologic stress, such as chickenpox, measles and diabetes, and injury stress from injuries and accidents were also significant in some cases.

Turning to the laboratory, the scientists found they could produce cleft palate in the offspring of 87% of the mice subjected to stress during the time when the unborn mice should be having their upper jawbones fused.

When the mouse mothers were protected against the stress by getting massive doses of vitamins B-6, B-12 and C, and of other essential nutrients, the number of offspring with cleft palate was reduced.

Science News Letter, October 6, 1956

BIOCHEMISTRY

Printers' Trouble May Lead to Alcoholism Cure

► BECAUSE PRINTERS working on color presses developed a violent reaction after drinking as little as six ounces of beer, medical science may have "a new cure for alcoholism."

The new "cure" would be like the famous Antabuse cure and would work in the same way and for the same reason.

The chemical that would be used instead of Antabuse would be N-butylaloxime. Persons who get this chemical into their bodies have a marked reaction, consisting of red, swollen face, red ears, stuffy nose and increased skin temperature on the face, after drinking alcoholic beverages.

The reaction starts within 10 or 15 min-

utes after a half ounce of whisky and increases if more whisky is taken.

Discovery of the reaction and the chemical responsible for it is announced by Drs. William Lewis and Louis Schwartz of Washington, D. C., in *Medical Annals* (Sept.), official journal of the Medical Society of the District of Columbia.

Their medical detective work in turning up the new potential "cure" for alcoholism started when all the men on the second floor of a large printing company complained to the management about the unpleasant reactions they developed if they drank alcoholic beverages.

Besides the blotched, red faces, the men were drowsy, short of breath and had palpitations. Because of these unpleasant symptoms, most of the men on the second floor stopped drinking.

The second floor was the press room, containing black and color presses. Careful investigation finally pinned the trouble to an anti-skimming compound in the inks, especially the yellow ink. Men at the ink manufacturing plant, it turned out, also had similar symptoms especially when mixing yellow ink.

Science News Letter, October 6, 1956

BIOCHEMISTRY

Try Rancid Fat Chemical To Aid Cancer Diagnosis

► A CHEMICAL found in rancid fat may help in early diagnosis and perhaps treatment of breast cancer, a report to the Canadian Medical Association states.

The chemical is heptaldehyde, and its potential value in breast cancer is announced by Drs. R. N. Lawson, A. L. Saunders and R. D. Cowen of Montreal.

Within minutes after the chemical was given to breast cancer patients, 80% felt a "tight sticking feeling" in the region of the cancer. In all of them, the elevated skin temperature over the cancer dropped suddenly. Heptaldehyde had no effect when the tumor was not cancerous.

Discovery that the temperature of the skin over a breast cancer is higher than that of neighboring skin was reported recently by Dr. Lawson. The drug together with skin temperature measurements may, the doctors state, give the long-sought "simple, reliable clinical test" for breast cancer at an early stage.

They believe the test would make "at least 95% of breast operations unnecessary," by eliminating the need for surgical removal of a bit of suspected cancer tissue for examination.

Use of the drug in treatment has not yet been confirmed, the medical association report states, although research by other scientists showed that breast cancers in animals could be reduced in size by the drug.

Investigation of the drug was prompted by the observation that no case of breast cancer has been reported among Eskimo women whose diet contains a high proportion of rancid fat.

Science News Letter, October 6, 1956

BOTANY

Hormone-Like Chemical Makes Flowers Bloom

► FLOWERS that bloom rarely or not at all have been made to blossom by the application of gibberellic acid, a new hormone-like substance.

Dr. Anton Lang of the botany department of the University of California at Los Angeles said it is the first instance in which flowering has been promoted consistently by chemical application and in a considerable number of plants.

Gibberellic acid has been known to Japanese workers for nearly 20 years but until recently has not attracted the interest of American and European plant scientists.

Dr. Lang applied the substance to plants that normally remain in a vegetative state indefinitely. Initial experiments were carried out on henbane, water pimpernell, sweet William, catchfly, carrots and other plants.

Such plants normally form stems and flowers only under stimulus of cold or of long summer days. Otherwise they just grow leaves directly from the root crown or from a tuber.

Gibberellic acid caused stems to shoot up immediately and two or three months later the plants would flower, while untreated plants remained stemless and non-blooming.

Preliminary experiments by Dr. Anton Kofranek of the department of floriculture in application of gibberellic acid to hasten blooming of commercially important China asters have been encouraging.

Science News Letter, October 6, 1956

ELECTRONICS

Electron Tube Works at Very High Frequencies

► AN ELECTRON TUBE designed to operate at extremely high frequencies with large power outputs has been developed by the Air Research and Development Command.

Considered one of the most significant research contributions in the field of electronics in recent years, the tube was developed by Ohio State University under contract to ARDC's Wright Air Development Center.

The tube, called a "retarding field oscillator," goes farther toward satisfying Air Force requirements for generation of high radio frequencies than any other electronic device now available.

The characteristics of the new tube are such that it operates at frequencies not only far above the highest TV channel of 890 megacycles, but also considerably above the World War II airborne radar frequency of 10,000 megacycles.

It actually works well at a frequency of 70,000 megacycles and has operated, with reduced power output, at 100,000 megacycles.

Science News Letter, October 6, 1956

TECHNOLOGY

The New Look in Paint

Rubberized masonry paint that waterproofs buildings, paint that keeps houses cooler and paint that can withstand 1,300-degree heat are some of new developments.

By HENRY W. PIERCE

► SITTING BULL never knew what really good war paint was. He had to dab colors on his skin one at a time, and wait for each to dry.

Today the famed Indian Chief could spray them all on almost at the same time and they would stay separate.

Barber pole paint, as the multi-colored spray has been called, is only one of a whole rainbow of new paint developments. Others include:

Jelly paint that will splash, spill or run down the brush.

Rubberized masonry paint that waterproofs building exteriors.

A lacquer emulsion finish consisting of gray, white and brown flecks that gives a multi-colored effect when sprayed on regular surfaces.

A universal system of colorants that provides 300 hues from just two tinting bases.

Catalytic-cured finishes that dry faster and look better.

The American people have become acutely tint-conscious. Car owners paint their vehicles to match their houses. Home owners paint their houses to match their cars. There have even been cases of dog owners dyeing their pets to match the furniture.

Do-It-Yourself Paint

Partly because of this newly awakened color-awareness, the do-it-yourself movement has hit the paint industry full force. A do-it-yourself painter using a single set of paints can color upholstery, stone, brick and tile in matching or complementing shades. The completely coordinated series of colors employs tinting bases and tube colorants that include exterior house paints, latex emulsion and interior wall paints, masonry paints, and gloss and satin sheen enamels.

For furniture and interior woodwork, a paint series has been developed with 24 interior finishes. Tube colorants are simply added to extra pale clear varnish at the rate of two ounces to a gallon. Besides popular wood tones, the set provides blues, greens and reds.

Some scientists foresee the day when paints, custom-mixed, will be ordered over a color picture-telephone!

These developments are only a drop in the paint can. Technologists say paint has a rosier future today than ever before.

In industry, paint has been made to with-

stand extremes of temperature, greatly increasing its possible technological uses. The heat-resistant paint, which combines titanium dioxide and aluminum, has been exposed to laboratory-created temperatures of 1,300 degrees Fahrenheit without burning. An exterior aluminum paint has been developed that reflects the sun's heat, light and infrared rays, reducing air conditioning bills.

Army engineers are working on a paint that will retard fire. Their aim is to develop a paint that will protect highly heated barracks in arctic regions. They are not looking for a paint that will make wood completely fireproof, but they do want one that will slow fire down until extinguishing measures can be taken.

In the Army, in government and in private industry, paint research is tending more and more toward synthetic products developed from such bases as coal and petroleum, rather than natural products derived from linseed oil. The trend was launched with the development of phenolic resins in the early 1900's and was given impetus by two world wars.

During World War I, large amounts of

organic solvents were produced, cutting the post-war price of these synthetic chemicals to about one-tenth of their original cost. This meant synthetic paints could be produced more economically. It also encouraged research.

Modern lacquer is an outgrowth of the post-World War I abundance of organic solvents.

During World War II, many paint-essential gums and pigments were channeled into all-important defense uses. Paint scientists substituted China's blockaded tung oil with South American fish and vegetable oils, only to find shipping shortages cut the flow to a trickle. Natural gums were no longer obtainable because the countries that supplied them had become war zones. Synthetic products were needed to make explosives. Essential metals such as lead, zinc and aluminum were at a premium.

This meant technologists had to develop workable substitutes. They learned to make metallic finishes without critical metals. They learned to coat "tin" cans without tin. They found a replacement for the zinc "galvanized" coating once thought indispensable for protecting metals from corrosion. The wartime search for synthetic rubber yielded styrene, a compound that was later used in latex paints.

A new kind of war paint was developed during World War II. Unlike the bright



MMMMmmmm! "MINT GREEN!"—The baby shown here is sucking a building block coated with one of the new enamels that cannot cause lead poisoning if eaten by children. Nonpoisonous green and yellow paints have been especially difficult to develop.

body paint used by primitive tribesmen, the modern war paint's chief purpose was camouflage. Since enemy air observers used cameras, strategic objects had to match their backgrounds on infrared film as well as to the naked eye. This meant devising a paint that would appear green to the naked eye but that, when photographed in infrared, would match chlorophyll, which comes out light on infrared film.

In war and peace, paint has been used since before the beginnings of recorded history. Stains from grasses and berries are used by present-day primitive tribes to symbolize their desires for rain, for abundant harvests or for victory in war. Early man may well have used them for similar purposes.

Ancient Cave Paintings

The ancestors of modern man painted remarkably artistic likenesses of animals on the walls and roofs of caves in southern Europe 20,000 years ago. The crude paints were made of lampblack, ochre and iron oxide. Ancient men may also have experimented with mixtures of fat and wood ashes to paint their bodies against cold and insects.

Paint was widely used in the first recording civilizations, since colored compounds were among the first tools for recording symbols. Ancient Egyptians used paint for religious purposes and probably for recording laws and business transactions. Greeks and Romans used paint for decoration and as a preservative, much as we do today.

Ancient peoples knew that such ingredients as white lead, iron oxide, red lead and yellow ochre could be mixed and used to protect as well as decorate clay jars.

American Indians understood paint long before Columbus hoisted a sail. They painted symbols on robes, tepees and totem poles.

When scientists 30 years ago decided to restore British Columbia's totem poles, they had to hire an old Indian as an adviser. The Indian was one of the few people alive who recalled how the poles had been painted. Even so, the scientists used modern commercial paint.

Modern paint consists chiefly of pigments, which are colored solids, and liquid vehicles that hold the pigments in suspension

and bind them together in a durable and protective film. Paint may also contain volatile thinners, such as mineral spirits, and driers composed of metallic compounds that tend to harden the paint film. Other chemicals may be added to regulate the paint's consistency.

When paint is manufactured, the pigments are ground to a paste in a liquid vehicle. Oils, thinners and driers are mixed in, and the paints are tinted to the desired shade with colored pastes.

For many years colonial America imported its paints and varnishes. The coloring pigments, chiefly white lead, and the vehicles with which they were mixed were purchased separately. There is a story that an early American artist once used the blood of a butchered hog, ink and coffee for pigments.

At any rate the paint industry never got a foothold in this country until 1804 when a Philadelphia firm began manufacturing white lead. Grinding pigments in oil for commercial use was not begun until even later.

Science News Letter, October 6, 1956

VETERINARY MEDICINE

Animal Disease Germs Hitch-Hike by Air

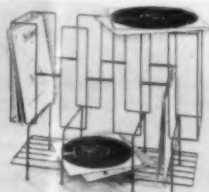
► SWIFT international air travel now gives animal as well as human disease germs a chance to hitch-hike into this country. Secretary of Agriculture Ezra Taft Benson said at the dedication of the Plum Island Animal Disease Research Laboratory on Long Island, N. Y.

Animals coming to this country by ship, if infected with some disease, would die before they reached this country. Now they can come in by plane from any part of the world in 48 hours. Nearly all of our poultry and over half of all livestock coming into this country from overseas now travel by air.

An animal might seem healthy when shipped, but harbor unsuspected germs of dangerous diseases. The disease would not develop until some time after the animal's arrival, by which time it might have spread to herds in this country.

Science News Letter, October 6, 1956

IF YOU LIKE TO COLLECT RECORDS



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ICHTHYOLOGY

Find Rare Fish Off Chilean Coast

► A FISH that looks like a swimming pine cone has been identified as an hitherto unknown species. The unique specimen was caught off the Chilean coast and sent to the Smithsonian Institution for identification.

Belonging to a distinctive genus, *Monacanthus*, described as having "an isolated niche in ocean life," the fish looks like a pine cone, alive or dead. The largest of such fishes are a little more than three inches long.

One genus "carries lanterns," luminous organs on each side of the mouth.

The swimming pine cone was found by Dr. Edwyn P. Reed, chief of the biological service of the Chilean Fish and Game Department, off the Robinson Crusoe island, Juan Fernandez. It was identified by Dr. Leonard P. Schultz, curator of fishes at the U. S. National Museum, Smithsonian Institution.

Dr. Schultz described it further as the "first of the entire family known in the American Pacific." Called "rare anywhere," the small fish were formerly associated with the tropical western and central Pacific.

Science News Letter, October 6, 1956

VITAMINS THE STRAIGHT FACTS

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Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

AFTER THE SUN GOES DOWN: The Story of Animals at Night—Glenn O. Blough—*Whittlesey-McGraw-Hill*, 48 p., illus. with drawings by Jeanne Bendick, \$2.50. Not all animals go to sleep when the sun sets. For some, life goes on mainly in the dark. Here, this life is described for children.

ALL ABOUT SNAKES—Bessie M. Hecht—*Random House*, 143 p., illus. with drawings by Rudolf Freund, \$1.95. Telling young boys and girls about the lives and habits of these interesting creatures.

ALL ABOUT THE FLOWERING WORLD—Ferdinand C. Lane—*Random House*, 141 p., illus. with drawings by Russell Francis Peterson, \$1.95. Introducing boys and girls to the world of plants and flowers.

ANIMAL DISEASES: The Yearbook of Agriculture 1956—Alfred Stefferud, Ed.—*Goet. Printing Office*, 591 p., illus., \$2.00. Needed research in this field, it is pointed out, may cost millions of dollars, but the results may save hundreds of millions. (See p. 215.)

THE ARMORED SCALE INSECTS OF CALIFORNIA—Howard L. McKenzie—*University of California Press*, Bulletin, California Insect Survey, Volume 5, 209 p., illus., paper \$4.50, cloth \$6.00. Unfortunately, the author comments, these insects are very unattractive to the average entomologist and even more so to the agriculturalist, yet knowledge of them is essential to the fruit grower.

CALCIUM AND PHOSPHORUS METABOLISM IN MAN AND ANIMALS WITH SPECIAL REFERENCE TO PREGNANCY AND LACTATION—Franklin C. McLean, Chairman—*New York Academy of Sciences*, Annals, Volume 64, Art. 3, 192 p., illus., paper, \$4.00.

DICTIONARY OF PHOTOGRAPHY: Add Reference Book for Amateur and Professional Photographers—Edited and largely re-written by A. L. M. Sowerby—*Philosophical Library*, 18th ed., 719 p., illus., \$10.00. This work has been kept up-to-date since publication of the first edition 70 years ago.

DIRECTORY FOR EXCEPTIONAL CHILDREN: Schools—Services—Other Facilities—E. Nelson Hayes, Ed.—*Porter Sargent*, 2d ed., 247 p., paper \$3.00, cloth \$4.00. Listing facilities for the blind, deaf or otherwise handicapped, of whom there are more than 3,500,000 in the United States.

DIRECTORY OF OUTPATIENT PSYCHIATRIC CLIN-

ICS AND OTHER MENTAL HEALTH RESOURCES IN THE UNITED STATES AND TERRITORIES 1954-55—George S. Stevenson and R. H. Felix, Eds.—*National Association for Mental Health*, 11th ed., 192 p., paper, \$1.50. Lists 1,200 clinics, estimated to be about 19% of the number needed.

DYNAMIC PSYCHIATRY IN SIMPLE TERMS—Robert R. Mezer with foreword by Harry C. Solomon—*Springer*, 174 p., illus., paper, \$2.50. A simple text for students of medicine, nursing and social work based on Dr. Mezer's conviction that "psychiatry can be made understandable."

EFFECTS OF NATURAL SELECTION ON HUMAN GENOTYPES—Howard Levene, R. B. McConnell and L. D. Dunn—*New York Academy of Sciences*, Annals, Volume 65, Art. 1, 31 p., paper, \$1.25.

ELECTRONIC TUBES, CIRCUITS, AND DEVICES—Lewis G. Blevins—*Universal Scientific Company*, 620 p., illus., paper, \$4.50. Radio transmitting and receiving principles, radar and TV principles, and fundamentals of industrial electronic controls.

EPIDEMIC AND ENDEMIC DIARRHEAL DISEASES OF THE INFANT—James A. Baker and Erwin Neter, Co-Chairmen—*New York Academy of Sciences*, Annals, Vol. 66, Art. 1, 230 p., illus., paper, \$3.50. Dealing especially with the various microorganisms acting as pathogens and with the particular susceptibility of the young child to these germs.

FLEXIBLE CULVERTS UNDER HIGH FILLS—John H. Timmers and others—*Highway Research Board*, Bulletin 125, 177 p., illus., paper, \$3.30.

GOING MY WAY ROUND THE WORLD—Jacques Chegaray, translated by Albert Meltzer—*Arthur Barker (Associated Booksellers)*, 296 p., illus., \$3.75. A French journalist presents a new point of view on the world and its peoples.

AN INTRODUCTORY COURSE IN COLLEGE PHYSICS—Newton Henry Black and Elbert Payson Little—*Macmillan*, 4th ed., 786 p., illus., \$6.75. New edition of a standard text.

A LABORATORY MANUAL FOR EARTH SCIENCE SURVEY: Astronomy, Geology, and Meteorology—Victor L. Crowell and Alan Lutz—*Burgess*, 103 p., illus., paper, \$3.00.

LANDMARKS IN THE HISTORY OF HYGIENE—Henry E. Sigerist—*Oxford University Press*, 78 p., illus., \$3.00. The Heath Clark Lectures delivered in 1952 at the London School of Hygiene and Tropical Medicine.

MAN AGAINST HIMSELF—Karl Menninger—*Harcourt, Brace*, 429 p., paper, \$1.45. New, inexpensive edition of a book first published in 1938 on what happens when man's hatred and destructive impulses are turned inward.

MOLECULAR BEAMS—Norman F. Ramsey—*Oxford University Press*, 466 p., illus., \$4.00. Molecular-beam experiments have for many years been among the most fruitful sources of fundamental information about molecules, atoms and nuclei.

MY POLYNESIA: Tahiti Revisited—Jacques Chegaray, translated by Robin Graham—*Arthur Barker (Associated Booksellers)*, 191 p., illus., \$3.75. A French journalist finds enchantment in Tahiti.

ON THE CELL MODEL FOR SOLUTIONS—Stuart

A. Rice—*New York Academy of Sciences*, Annals, Volume 65, Art. 2, 24 p., paper, \$1.25.

PROCEDURE IN TAXONOMY—Edward T. Schenck and John H. McMasters, enlarged and in part rewritten by A. Myra Keen and Siemon William Muller—*Stanford University Press*, 3d ed., 119 p., \$3.50. With the vast increase in numbers of known forms of animals and with the change in concepts of classification brought about by acceptance of the theory of evolution, mechanics of modern taxonomy have become very complex.

THE PUSH-BUTTON WORLD: Automation Today—E. M. Hugh-Jones, Ed.—*University of Oklahoma Press*, 158 p., \$3.75. Automation, the editor explains, is not merely an extension of the already familiar mechanization of industrial processes; it implies a new method of approach and a fresh concept in industry.

REACTORS—R. A. Chaprie and others, Eds.—*McGraw-Hill*, Progress in Nuclear Energy, Series II, 492 p., illus., \$14.00. It is anticipated that nuclear power will affect most of the people of the world during the next 20 years. This volume presents review papers on the present state of the reactor art.

RESPONSES OF VEGETATION TO FIRE: A Study of the Herbaceous Vegetation Following Chaparral Fires—James R. Sweeney—*University of California Press*, U. of Calif. Publications in Botany, Vol. 28, No. 4, 107 p., illus., paper, \$2.00. The lush vegetation that comes up after a chaparral fire results from viable seeds present in the soil before the fire. Soil acts as an effective insulator.

SELF-GUIDING AUTO TOUR OF YOSEMITE NATIONAL PARK—Richard P. Ditton and Donald E. McHenry—*Yosemite Natural History Association*, 112 p., illus., paper, 60 cents. Describing points of interest and telling you how to find them. Includes also a brief description of the wildlife and plants in the park. Distances between sights are given in odometer readings.

SOME PROTOZOAN DISEASES OF MAN AND ANIMALS: Anaplasmosis, Babesiosis and Toxoplasmosis—Clarence R. Cole, Chairman—*New York Academy of Sciences*, Annals, Volume 64, Art. 2, 253 p., illus., paper, \$3.50. It is hoped that these papers will serve to reorient the thinking of researchers.

SYMPOSIUM ON IMPACT TESTING—S. L. Hoyt and others—*American Society for Testing Materials*, ASTM Special Technical Publication No. 176, 169 p., illus., paper, \$3.50. Includes papers discussing impact and shock tests for parts, components and complete structures.

SYMPOSIUM ON THE ROLE OF SOME OF THE NEWER VITAMINS IN HUMAN METABOLISM AND NUTRITION—R. D. Adams and others—*National Vitamin Foundation*, Nutrition Symposium Series Number 12, 135 p., illus., paper, \$2.50.

THOUSANDS OF SCIENCE PROJECTS: Classified Titles of Exhibits Shown at Science Fairs and/or Produced as Projects for the Annual Science Talent Search—Margaret E. Patterson and Joseph H. Kraus, Eds.—*Science Clubs of America (Science Service)*, 44 p., illus., paper, 25 cents. Ideas originated by thousands of boys and girls interested in science.

TREASURES TO SEE: A Museum Picture-Book—Leonard Weisgard—*Harcourt, Brace*, 30 p., illus., \$3.00. Introducing children to the world of art.

THE WORLD WE LIVE IN—Editorial Staff of Life and Lincoln Barnett, text especially adapted for young readers by Jane Werner Watson—*Simon and Schuster*, 216 p., illus., \$4.95. An abundance of color pictures, breathtakingly beautiful, accompanied with brief and simple text.

Science News Letter, October 6, 1956

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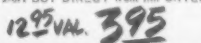
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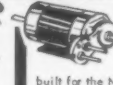


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BIOCHEMISTRY

Seeds May Yield Disease Remedies

➤ ANTIBIOTICS may in the future come from the germinating seeds of various plants.

One potential antibiotic has already been isolated from a common garden plant called the red hot poker, Dr. L. Ferenczy of the University of Szeged, Hungary, reports in *Nature* (Sept. 22). He has tested seeds not more than a year old of 400 varieties and species of higher plants belonging to 70 plant families for ability to stop the growth of such test organisms as *Bacillus subtilis*, *Staphylococcus aureus*, which is found in boils, and a member of the dysentery germ family, *Shigella flexneri* VI. Included in the seeds tested were juniper and geranium seeds.

Science News Letter, October 6, 1956

Do You Know?

Dutch elm disease is entirely dependent on insects to move from one host to another.

Velocity of sound in water varies with changes in temperature and, to a lesser extent, with changes in the salinity of the water; the velocity increases with increase in depth.

France, with a territory only slightly larger than the northeastern United States, has more apple trees than the entire United States.

Each year, lightning takes the lives of approximately 400 people and injures more than 1,000 others, mostly farm residents.

A single public safety department, instead of one department for firemen and another for police, is recommended for fire and crime prevention.

Science News Letter, October 6, 1956

GOLF: Your LEFT SHOULDER makes the amazing difference!

One of the most startling discoveries to emerge from wide research in the golf swing is that your game literally hinges on your left shoulder!

How this is so and how to use this great discovery to improve your own game beyond all expectations is a matter of short weeks is set forth in **THE GOLF SECRET** by Dr. H. A. Murray—a medical doctor, golfer, and golf researcher, who has applied his expert knowledge of anatomy in this sweeping and utterly different study of the golf swing.

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ARCHAEOLOGY

"Tools" Made By Nature

► EVIDENCE of the great antiquity of man in America carries less weight as a result of consultation with experts in the field in Europe.

The verdict of a "jury" of archaeological stars is reported in *Masterkey* (Sept.-Oct.), publication of the Southwest Museum in Los Angeles.

Some 47 specimens, believed to be tools chipped from stone by ancient Americans, were carried to Europe by Miss Freddie Curtis, amateur archaeologist of California. She showed them to 12 outstanding archaeologists.

In return, they showed her collections of man-made tools from museums of England, France and Italy, and also an imposing array of tool-like specimens judged not man-made from the nature of the area where they were found.

These "tools" created by nature closely resemble many of the crude, patinated, weathered, worn and non-traditionally shaped "tools" from America, Miss Curtis reports.

"In fact," she comments, "some of the material was better looking than some of our 'tools' and it was difficult to realize that they were not accepted as man-made."

Among the specimens carried to Europe by Miss Curtis were seven of those collected in San Diego by Dr. George F. Carter of the Johns Hopkins University, Baltimore, and judged by him to be 100,000 years old because of their position in rock strata.

The jury of experts judged that six of the seven were caused naturally—by stones flaking against each other or by action of heat or volcano. On the seventh specimen there was a hung jury. Dr. Kenneth P. Oakley of the British Museum of Natural History thought it might be a pebblecore tool. Hazzledine Warren, another British archaeologist, considered it seriously.

Two experts from Paris, Abbe Henri Breuil and Harper Kelly, rejected it completely. The others all wanted further information before coming to a decision.

All the other American specimens were collected from the surface of the ground and so lacked any geological evidence of their age.

Some, although made from different

kinds of stone, matched the European specimens in general style of workmanship so that if the American tools were mixed in with the European specimens, they would be indistinguishable. The rest, different in style, were judged to be natural creations.

Science News Letter, October 6, 1956

CHEMISTRY

Find Deadly Silo Gas By Radioactive Nitrogen

► DEADLY SILO GAS, which has killed farmers for years, is nitrogen dioxide.

Adding radioactive nitrates and amino acids to forage before starting silage-making showed University of Wisconsin's emeritus professor William H. Peterson that the dangerous gas is formed from nitrates by the action of bacteria. The finding was reported to the American Chemical Society meeting in Atlantic City.

The gas is formed during the first few days of silage-making. Farmers are warned against entering unventilated silos for five to ten days after filling.

Science News Letter, October 6, 1956

Questions

BIOCHEMISTRY—What kind of drug might be more needed than tranquilizers? p. 215.

□ □ □

CHEMISTRY—How can scientists now test insect repellents without themselves serving as guinea pigs? p. 214.

□ □ □

CLIMATOLOGY—How can pollens help to date ancient sediments? p. 213.

□ □ □

ICHTHYOLOGY—What rare fish has been found off the Chilean coast? p. 219.

□ □ □

PHYSIOLOGY—What is the connection between body build and juvenile delinquency? p. 212.

□ □ □

VITAL STATISTICS—What state has the highest death rate for coronary heart disease? p. 212.

□ □ □

PHOTOGRAPHS: Cover and p. 211, W. S. Finsen; p. 213, American Machine & Foundry Company; p. 214, General Electric Research Laboratory; p. 215, Chrysler Corporation; p. 218, Pittsburgh Plate Glass Co.; p. 224, Leisure Industries.

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—VICTOR W. KILICK, In Charge of Astronomical Observatory, Sacramento Junior College, Calif.

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—LEONARD B. ABBEY, Jr., Decatur, Ga.

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Science News Letter, October 6, 1956

❁ **SLIDE PROJECTOR** is available in both remote-controlled and manually-operated models. Both have a four-inch f/3.3 lens and a 500-watt lamp. The automatic slide changer inserts one slide, retracts and files the previous one and advances the next. They have provision for ten-degree elevation adjustments and one-degree leveling correction.

Science News Letter, October 6, 1956

❁ **TIE HOLDER** is built into the tie. Button holes on the under side of the smaller tie end permit the entire tie to be clipped or buttoned to the shirt. The tie is designed so that the front-facing end is secretly attached to the buttoned-down end.

Science News Letter, October 6, 1956

❁ **SAUCER ASHTRAY** is a miniature tray, as shown in the photograph. It fits onto any saucer's edge. Cigarette ashes, tea



bags, lemon slices or after-dinner mints can be placed in it. Saucers and cups are kept clean and neat.

Science News Letter, October 6, 1956

❁ **WHEELED SNOW PLOW** eases back-bending, snow-shoveling tasks. The ad-

justable, all-steel shovel can have the angle of its blade changed by fingertip control of four springs. It rolls on six-inch rubber-tired wheels.

Science News Letter, October 6, 1956

❁ **BAGGING MACHINE** for cleaning establishments works automatically. Cleaned and pressed garments are packaged in the transparent flexible film made from a polyethylene plastic. Still bagged, the garment is protected in the closet. Bags 24 inches wide and of any length are made by the machine in the store.

Science News Letter, October 6, 1956

❁ **PHOTO SCALE** is a link-type ruler. Instead of reducing or enlarging the picture, the ruler is reduced or enlarged. The measuring device stretches from six inches to 24. Measurements read on the ruler are the final reproduction dimensions.

Science News Letter, October 6, 1956

❁ **CODED PIPETTES** have a different color band each for quick identification. The pipettes have double-beveled tips that are tapered. They are available in both Mohr and serological types with six different bands: red, yellow, blue, green, black and white.

Science News Letter, October 6, 1956



Nature Ramblings



By HORACE LOFTIN

➤ A FEW YEARS AGO, the sea lamprey managed to invade the Great Lakes, where it apparently has established itself permanently.

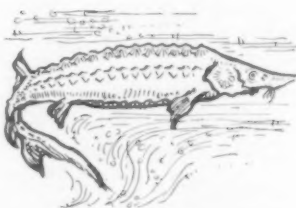
The lamprey is a predator living off other fish, to which it attaches by its sucker-like mouth and rasps away the flesh with a circle of razor-sharp teeth.

About the time of the sea lamprey invasion, catches of commercial fish in some of the lakes began to decline drastically. The blame for much of this spectacular decline was laid at the door of the lamprey, and probably correctly.

Vigorous measures are being taken by both the United States and Canada to bring the lamprey under control, and it looks as though success may soon come in the anti-lamprey campaign.

However, long before lampreys worked their way into the Great Lakes, commercial species there were declining.

Disappearing Fish



For example, in 1880 the catch of the lake sturgeon, *Acipenser rubicundus*, in the Great Lakes exceeded 7,000,000 pounds. By 1936, the annual catch had fallen to about 25,000 pounds. Certainly the sea lamprey could not be charged with this decline. What, then, had happened?

This sturgeon, which may grow to nearly seven feet in length and weigh about 200 pounds, is valuable both for its flesh and for

its eggs, from which caviar is made. It is clumsy and relatively easy to catch. Perhaps the fishermen just caught too many of them.

However, overfishing may not be all the story, either, just as the lamprey may not be all the story behind the present decline in the Great Lakes fisheries.

What was the role of pollution of the lakes and of the streams in which the sturgeon spawns? Did the growth of factories in the area, pouring out their wastes into the water, hasten the fall of the sturgeon there? Did the accumulation of silt eroded from poorly managed farm lands destroy the spawning places of the great fish?

It is safe to say there is more than one cause for any marked decline in any natural population of an area. One of the chief goals of enlightened conservation is to seek out and prevent as many of those detrimental causes as possible.

Science News Letter, October 6, 1956